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Amendments to the Claims

Claim Listing, per 37 CFR § 1.121:

Claims 1-20 (canceled).

21. (currently amended) A method of ~~estimating~~ ~~evaluating~~ the Hlog function of a line in a DSL system, the method comprising:

generating a plurality of attenuation data points, wherein each attenuation data point corresponds to a different frequency carrier mask and comprises an attenuation value, further wherein generating a single attenuation data point comprises:

- (1) ~~setting a data-bearing frequency carrier mask;~~
- (2) ~~transmitting data using one or more frequencies in the carrier mask;~~
- (3) ~~receiving an attenuation value for the transmitted data; and~~
- (4) ~~plotting the attenuation value; and~~
- (5) ~~repeating steps (1)-(4) using one or more different carrier masks~~

performing at least one of the following:

storing at least one of the following:

each generated attenuation data point; or

each plotted attenuation values; or

generating a graphical depiction of the estimated Hlog function based on the plurality of generated attenuation data points.

22. (original) The method of Claim 21 wherein f is the only frequency in each carrier mask and the corresponding received attenuation value is the insertion loss of the line for f .

23. (original) The method of Claim 21 wherein the data-bearing carrier mask comprises a band of frequencies having a lower bound of f and further wherein the received attenuation value is an approximation of the insertion loss of the line for f .

24. (currently amended) The method of Claim 21 further comprising:
(6) approximating a the-channel transfer function for an ~~of the~~ entire DSL system usable frequency range on the basis of received attenuation values.

25. (currently amended) The method of Claim 24 further comprising:
(7) removing undesirable effects from the approximated channel transfer function.

26. (currently amended) The method of Claim 21 further comprising:
(6) determining at least one of the following values for the line:

QLN;

MSE; or

SNR.

27. (currently amended) The method of Claim 26 further comprising:
(7) setting or recommending an ~~the~~ operational mode of part of the DSL system based on at least one of the following values for the line:

Hlog;

QLN;

MSE; or

SNR.

28. (currently amended) A method of computing the MSE noise of a line in a DSL system, the method comprising:

estimating the Hlog function of the line;

obtaining the PSD function of the line;

obtaining the SNR function of the line; and

computing the MSE noise by subtracting the SNR from the sum of the PSD and

Hlog; and

storing or recording the computed MSE noise in a memory.

29. (original) The method of Claim 28 wherein the SNR function is directly reported.

30. (currently amended) The method of Claim 28 wherein the SNR function is computed based on at least one of the following:

~~the~~ reported past bit distributions;

~~the~~ reported current bit distributions;

an ~~the~~ initial PSD;

an ~~the~~ Hlog function; or

~~the QLN_i and~~

31. (original) The method of Claim 28 wherein obtaining the PSD function comprises estimating a PSD function or collecting a reported PSD function.

32. (new) The method of Claim 28 wherein estimating the Hlog function of the line comprises at least one of the following:

the method of Claim 33, wherein Hlog is a model parameter; or

the method of Claim 21.

33. (new) A method of generating a model of a DSL system, the DSL system model comprising a set of one or more model parameter values for one or more model parameters, the method comprising:

prompting the DSL system to generate operational data, wherein prompting the DSL system to generate operational data comprises:

setting an operational mode for the DSL system based on one or more of the model parameters; and

operating the DSL system using the set operational mode to generate the operational data;

collecting the generated operational data;

using the collected operational data to generate one or more model parameter values; and

recording or storing one or more of the generated model parameter values in a memory.

34. (new) The method of Claim 33 wherein prompting the DSL system to generate operational data further comprises selecting the model parameters;

further wherein setting an operational mode for the DSL system is based on one or more of the selected model parameters; and

further wherein using the collected operational data to generate one or more model parameter values comprises comparing the collected operational data to one or more previous model parameter values.

35. (new) The method of Claim 34 further comprising modifying the model parameter values based on the comparison of the collected operational data to the one or more previous model parameter values.

36. (new) The method of Claim 33 further comprising updating the DSL system model by performing the method of Claim 33 iteratively.

37. (new) The method of Claim 33 wherein the operational data comprises performance-characterizing operational data available from the DSL system.

38. (new) The method of Claim 33 wherein prompting the DSL system to generate operational data is repeated using a plurality of operational modes for the DSL system.

39. (new) The method of Claim 33 further comprising one or more of the following:
recommending operational modes for the DSL system based on the DSL system

model; or

diagnosing the DSL system using the DSL system model.

40. (new) The method of Claim 33 wherein setting the operational mode for the DSL system comprises setting one or more operational parameters in a modem in the DSL system.

41. (new) The method of Claim 33 wherein the model parameter value set comprises at least one of the following DSL parameter types:

line length;

number of bridged taps;

position of each bridged tap;

channel insertion-loss transfer function;

power level;

PSD level;

bit error rate;

time-averaged versions of errors;

errored seconds;

code violations;

code settings;

PSD shape; or

potential noises.

42. (new) The method of Claim 33 wherein setting the operational mode for the DSL system comprises setting an operational frequency band.

43. (new) The method of Claim 42 wherein the collected operational data comprises one or more points showing Hlog for a set operational frequency band.

44. (new) A DSL system estimator for generating a model of a DSL system, the DSL system model comprising a set of one or more model parameter values for one or more model parameters, the estimator comprising:

collecting means coupled to the DSL system and comprising a hardware module configured to collect operational data generated by the DSL system; and

estimating means coupled to the collecting means and comprising a hardware module configured to generate one or more DSL system model parameter values based on the collected operational data and further configured to record or store one or more generated model parameter values in a memory;

wherein the estimator is configured to prompt the DSL system to generate operational data, wherein prompting the DSL system to generate operational data comprises:

setting an operational mode for the DSL system based on one or more of the model parameters, wherein operating the DSL system using the set operational mode generates the operational data.

45. (new) The DSL system estimator of Claim 44 wherein the estimator is coupled to a signal generator configured to send operating mode instructions to the DSL system.

46. (new) The DSL system estimator of Claim 44 wherein the hardware module of the collecting means and the hardware module of the estimating means are the same hardware module.

47. (new) The DSL system estimator of Claim 44 wherein the hardware module of the collecting means and the hardware module of the estimating means are distinct hardware modules.

48. (new) A computer program product comprising a machine readable medium on which is provided program instructions for generating a model of a DSL system, the DSL system model comprising a set of one or more model parameter values for one or more model parameters, the program instructions comprising:

instructions for prompting the DSL system to generate operational data, wherein prompting the DSL system to generate operational data comprises:

setting an operational mode for the DSL system based on one or more of the model parameters; and

operating the DSL system using the set operational mode to generate the operational data;

instructions for collecting the generated operational data;

instructions for generating one or more model parameter values based on the collected operational data; and

instructions for recording or storing one or more of the generated model parameter values in a memory.